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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT H. WOLLENBERG

Appeal 2009-013348
Application 10/779,419
Technology Center 1600

Decided: March 2, 2010

Before TONI R. SCHEINER, RICHARD M. LEBOVITZ, and JEFFREY N. FREDMAN, *Administrative Patent Judges.*

FREDMAN, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a high throughput method for screening fuel additive composition samples. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

Statement of the Case

Background

"Presently, research in the fuel industry involves individually forming candidate fuel compositions and then performing a macro-scale analysis of the candidate compositions by employing a large amount of the candidate to be tested" (Spec. 1, ll. 17-19). According to the Specification, "there exists a need in the art for a more efficient, economical and systematic approach for the preparation of fuel compositions and screening of such compositions" (Spec. 2, ll. 2-4).

The Specification teaches "a high throughput preparation and screening of a vast number of diverse compositions can be achieved to identify which additives and/or compositions have reduced deposit formation tendencies" (Spec. 3, ll. 3-5).

The Claims

Claims 1-17, 62, and 63 are on appeal. Claims 1 and 16 are representative and read as follows:

> 1. A high throughput method for screening fuel additive composition samples, under program control, comprising:
>
> (a) providing a plurality of different fuel additive composition samples, each sample comprising at least one fuel additive;
>
> (b) measuring the deposit formation of each sample to provide deposit formation data results for each sample; and,
>
> (c) outputting the results of step (b).
>
> 16. The method of claim 1, further comprising the step of using the results of step (b) as a basis for obtaining a result of further calculations.

The prior art

The Examiner relies on the following prior art references to show unpatentability:

Cherpeck '315	US 5,306,315	Apr. 26, 1994
Cherpeck '178	US 5,399,178	Mar. 21, 1995
Burow et al.	US 2002/0090320 A1	Jul. 11, 2002
Luttermann et al.	US 6,713,264 B2	Mar. 30, 2004

Heneghan et al., *Studies of Jet Fuel Thermal Stability in a Flowing System*, 115 TRANSACTIONS OF THE ASME 480-485 (1993).

The issues

A. The Examiner rejected claim 16 under 35 U.S.C. § 112, second paragraph as indefinite (Ans. 3).

B. The Examiner rejected claims 1, 2, and 8 under 35 U.S.C. § 102(b) as anticipated by Heneghan (Ans. 3).

C. The Examiner rejected claims 1-6 and 8-11 under 35 U.S.C. § 102(b) as anticipated by Cherpeck '178 (Ans. 3-4).

D. The Examiner rejected claims 1-11 under 35 U.S.C. § 102(b) as anticipated by Cherpeck '315 (Ans. 4)[1].

E. The Examiner rejected claims 1-6, 8-13, 15, and 17 under 35 U.S.C. § 103(a) as obvious over Cherpeck '178 and Burow (Ans. 4-6).

F. The Examiner rejected claims 1-11, 62, and 63 under 35 U.S.C.

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[1] We note that Appellants identify only claims 1-6 and 8-11 as rejected under this ground, but the Examiner has rejected claims 1-11 over Cherpeck '315 in both the Final Rejection and Examiner's Answer. Since Appellants do not separately argue claim 7, we select claim 1 for analysis. *See* 37 C.F.R. § 41.37(c)(1)(vii)(2006).

§ 103(a) as obvious over Cherpeck '315 (Ans. 6-7).

G. The Examiner rejected claims 1-6, 8-15, and 17 under 35 U.S.C. § 103(a)[2] as obvious over Cherpeck '178, Burow, and Luttermann (Ans. 7-8).

A. 35 U.S.C. § 112, second paragraph

The Examiner finds that "claim 16 has no positive, active steps (i.e., "using the results of step (b) as a basis for obtaining a result of further calculations), and the term 'basis' is confusing because it is not clear if this term is intended to provide any method steps" (Ans. 3).

Appellant argues that the "specification further sets forth on page 6, lines 9 and 10 that this information, i.e., the results of step (b), may also allow for calculating necessary changes of the additives and fuels at the least cost" (App. Br. 5). Appellant argues that this "clearly sets forth that the results of step (b) can be used as *a basis* in determining whether any changes in the additives and/or fuel used in the compositions needs to be adjusted in order to find the leading fuel compositions" (App. Br. 5).

In view of these conflicting positions, we frame the indefiniteness issue before us as follows:

Has Appellant demonstrated that the Examiner erred in concluding that the phrase "using the results of step (b) as a basis for obtaining a result of further calculations" is indefinite? (Ans. 3).

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[2] While claim 14 is listed in the heading, the Examiner did not list claim 14 in the statement of rejection. However, Appellants clearly indicate that claim 14 is subject to the rejection. We therefore treat claim 14 as subject to rejection and therefore on appeal before us.

Findings of Fact

1. The Specification teaches that "[a]dding the information related to the deposit formation data of each of the stored compositions substantially facilitates the selection of candidate compositions capable of successfully carrying out the deposit formation tests under the desired operating conditions or statutory requirements" (Spec. 6, ll. 2-5).

2. The Specification teaches that "storing this information in the combinatorial library not only allows for a rapid selection of multiple fuel compositions in response to new requirements for a given test, but also becomes another piece of information in addition to, for example, storage stability, of the cataloged compositions" (Spec. 6, ll. 5-8).

3. The Specification teaches that the "information may also allow for calculating necessary changes of the additives and fuels at the least cost" (Spec. 6, ll. 9-10).

Principles of Law

"The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification." *Miles Laboratories, Inc. v. Shandon, Inc.*, 997 F.2d 870, 875 (Fed. Cir. 1993).

However, the fact that a claim is broad does not mean that it is indefinite, that is, undue breadth is not indefiniteness. *In re Johnson*, 558 F.2d 1008, 1016 n.17 (CCPA 1977).

Analysis

We are not persuaded by the Examiner's rejection. There is no doubt that claim 16 broadly permits the deposit formation data results to be used in

any other possible calculations. However, the Specification teaches several specific further calculations using this data, including identifying optimal compositions to improve fuel use, storage stability, or minimizing cost (FF 1-3).

The Examiner has not identified any element of the claim which would be ambiguous to the ordinary artisan, who understands the concept of further analyzing raw data, particularly in light of the discussion in the Specification (*see* FF 1-3).

Conclusion of Law

Appellant has demonstrated that the Examiner erred in concluding that the phrase "using the results of step (b) as a basis for obtaining a result of further calculations" is indefinite. (Ans. 3).

B. 35 U.S.C. § 102(b) over Heneghan

The Examiner finds that "Heneghan teaches a method for measuring the performance of fuel additives in a plurality of fuel samples, wherein a measured performance criteria is measuring deposit formation from the fuel sample" (Ans. 3).

Appellant argues that "Heneghan et al. fail to disclose a high throughput method for screening fuel additive composition samples, under program control, within the scope of appealed Claim 1" (App. Br. 6). Appellant argues that "the purpose of the claims is to conduct a high throughput method under program control, i.e., automated, such that a relatively large number of different fuel additive composition samples can be rapidly prepared and screened for deposit formation data" (App. Br. 11).

In view of these conflicting positions, we frame the anticipation issue before us as follows:

Has Appellant demonstrated that the Examiner erred in finding that Heneghan teaches a "high throughput method for screening fuel additive composition samples, under program control" as required by Claim 1?

Findings of Fact

4. The Specification teaches that the "expression 'high throughput' as used herein shall be understood to mean that a relatively large number of different fuel additive compositions or fuel compositions can be rapidly prepared and analyzed" (Spec. 5, ll. 12-15).

5. The Specification teaches that the "expression 'program control' as used herein shall be understood to mean the equipment used herein in providing the plurality of fuel compositions is automated and controlled by a microprocessor or other computer control device" (Spec. 6, ll. 12-14).

6. Heneghan teaches "the development of a single-pass heat exchanger system to evaluate jet fuel additives and presents numerous results on carbon deposition" (Heneghan 480, col. 2).

7. Heneghan teaches that an "American Lewa Model EK-1 variable stroke, positive displacement diaphragm pump with a surge suppressor provides fuel flow in the range [of]1 to 100 ml/min at a pressure of 3.45 MPa. To monitor the fuel flow rate independently, a Max Machinery Model 213-310 positive displacement flow meter is employed" (Heneghan 481, col. 1).

8. Heneghan teaches that the

> test fuel passes through the tubular test section at a flow rate of 16 ml/min for 6, 12 or 24 hours. The test section is heated by the copper block heater, which is maintained at a predetermined temperature . . . At the conclusion of the test, the test section is removed, drained, cut into 25-mm or 50-mm length segments, rinsed with hexane, dried in a vacuum oven, and analyzed for carbon deposits on a Leco RC-412 multiphase carbon analyzer.

(Heneghan 481, col. 2).

9. Heneghan teaches that the "amount of carbon deposit is then compared to baseline test results" (Heneghan 481, col. 2).

10. Heneghan teaches that "[v]arious baseline and blended jet fuels were tested" (Heneghan 482, col. 1). Table 1 of Heneghan shows testing of 3 baseline fuels and Table 2 of Heneghan shows testing of 3 blended fuels (Heneghan 482).

11. The Examiner finds that Heneghan teaches the use of "the Sensotech Type TJE pressure transducer that provides the signal to the Micristar controller, the data recording system of the Fluke model 2400B computer with a Model 1722A controler [sic] using a Fisher Model 546 I/P converter, the Hewlett Packard 5890 Series II gas chromatograph, and the Leco RC-412 multiphase carbon analyzer" (Ans. 10-11; *see* Heneghan 480-481).

12. The Examiner finds that "numerous of these commercial components that are integrated into the fuel analysis system cited by Heneghan in the sectioned titled, *Experimental Work*, on page 481 are 'under program control' as required by claim 1" (Ans. 11).

Principles of Law

It is well settled that, "[t]o anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997).

It is also well settled that during examination, the PTO must interpret terms in a claim using "the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification." *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

> [D]uring patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.... An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process.

In re Zletz, 893 F.2d 319, 321-22 (Fed. Cir. 1989).

Arguments not made are waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) ("Any arguments or authorities not included in the brief or a reply brief ... will be refused consideration by the Board, unless good cause is shown.").

Analysis

Claim Interpretation

Claim interpretation is at the heart of patent examination because before a claim is properly interpreted, its scope can not be compared to the prior art. In this case, Appellant challenges the Examiner's interpretation of

the phrase "high throughput method for screening fuel additive composition samples, under program control" as recited in Claim 1, arguing that "the high throughput method, as set forth in the present claims, is conducted under program control, i.e., automated, such that a relatively large number of different fuel additive composition samples can be rapidly prepared and screened for deposit formation data" (App. Br. 6).

During prosecution, claim terms are given their broadest reasonable interpretation as they would be understood by persons of ordinary skill in the art in the light of the Specification. Therefore, we first turn to the Specification to determine whether the meaning of the phrase "high throughput method for screening fuel additive composition samples, under program control" can be discerned. (Claim 1).

Both of the key terms in dispute, "high throughput" and "program control" are explicitly defined in the Specification. The Specification teaches that the "expression 'high throughput' as used herein shall be understood to mean that a relatively large number of different fuel additive compositions or fuel compositions can be rapidly prepared and analyzed" (Spec. 5, ll. 12-15; FF 4).

The Specification does not, however, provide any specific standard or requirement as to how many fuel additive compositions are necessary to be considered a relatively large number. This lack of specificity lends itself to a broad interpretation, and we therefore interpret "high throughput" as inclusive of any analysis of two or more fuel additive compositions. *See, e.g., Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984) ("When a word of degree is used … [it] must [be

determined] whether the patent's specification provides some standard for measuring that degree.").

The Specification teaches that the "expression 'program control' as used herein shall be understood to mean the equipment used herein in providing the plurality of fuel compositions is automated and controlled by a microprocessor or other computer control device" (Spec. 6, ll. 12-14; FF 5). The Specification teaches several ways to deliver fuel compositions including one in which the "amount of fuel dispensed is determined by metering pump 112, which can be computer controlled" (Spec. 15, ll. 20-22). We therefore conclude that the broadest reasonable interpretation of "program control" in the context of the Specification requires computer control (FF 5).

Claim 1

Heneghan teaches a method for screening fuel additive composition samples (FF 6). Heneghan teaches providing and testing at least six different samples, which satisfies the "high throughput" requirement as broadly interpreted above (FF 10).

Heneghan teaches that an "American Lewa Model EK-1 variable stroke, positive displacement diaphragm pump with a surge suppressor provides fuel flow in the range [of] 1 to 100 ml/min at a pressure of 3.45 MPa. To monitor the fuel flow rate independently, a Max Machinery Model 213-310 positive displacement flow meter is employed" (Heneghan 481, col. 1; FF 7). The Examiner finds that Heneghan teaches the use of "the Sensotech Type TJE pressure transducer that provides the signal to the Micristar controller, the data recording system of the Fluke model 2400B computer with a Model 1722A controler [sic] using a Fisher Model 546 I/P

converter, the Hewlett Packard 5890 Series II gas chromatograph, and the Leco RC-412 multiphase carbon analyzer" (Ans. 10-11; Heneghan 481; FF 11-12).

The Examiner reasonably concludes that the fuel flow is computer controlled as encompassed by the "program control" limitation of claim 1.

We are not persuaded by Appellant's argument that "[c]ertainly, Heneghan et al. do not disclose anything that would remotely be considered a high throughput method" (App. Br. 11). As we noted previously, the Specification does not provide any specific standard for "high throughput." We therefore interpreted "high throughput" as inclusive of any analysis of two or more fuel additive compositions. *See, e.g., Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984) ("When a word of degree is used ... [it] must [be determined] whether the patent's specification provides some standard for measuring that degree.").

Further, Appellant's Claim 1 does not impose any limitations on how the "providing," "measuring," and "outputting" steps are performed (*see* Claim 1). Thus, while Heneghan may not perform the method in a manner identical to that disclosed in the Specification, the Examiner reasonably finds that Heneghan satisfies the "providing", "measuring", and "outputting" steps of Claim 1 (FF 6-12). "[L]imitations are not to be read into the claims from the specification." *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (*citing In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989)).

Conclusion of Law

Appellant has not demonstrated that the Examiner erred in finding that Heneghan teaches a "high throughput method for screening fuel additive composition samples, under program control" as required by Claim 1.

C. 35 U.S.C. § 102(b) over Cherpeck '178

The Examiner finds that "Cherpeck teaches a series of chemical compound analogs that serve as fuel additives. Cherpech [sic] teaches testing of multiple fuels samples by measuring their deposit formation" (Ans. 3).

Appellant argues that "Cherpeck '178 merely discloses individually testing fuel compositions for deposit formation via a non-automated process. At no point, however, is there any disclosure in Cherpeck '178 of a high throughput method for screening a plurality of fuel additive samples for deposit formation" (App. Br. 13).

In view of these conflicting positions, we frame the anticipation issue before us as follows:

Has Appellant demonstrated that the Examiner erred in finding that Cherpeck '178 teaches a "high throughput method for screening fuel additive composition samples, under program control" as required by Claim 1?

Findings of Fact

13. Cherpeck '178 teaches that the "test compounds were blended in gasoline and their deposit reducing capacity determined in an ASTM/CFR single-cylinder engine test" (Cherpeck '178, col. 18, ll. 21-23).

14. Cherpeck '178 teaches that "[e]ach run was carried out for 15 hours, at the end of which time the intake valve was removed, washed with hexane and weighed. The previously determined weight of the clean valve was subtracted from the weight of the valve at the end of the run" (Cherpeck '178, col. 18, ll. 25-29).

15. Cherpeck '178 teaches that the "amount of carbonaceous deposit in milligrams on the intake valves is reported for each of the test compounds in Table I" (Cherpeck '178, col. 18, ll. 37-39).

16. Cherpeck '178 teaches analysis of at least five different fuel compounds in Tables I and II, the base fuel, preparations 11 and 12 and Examples 1 and 2 (Cherpeck '178, col. 18).

17. The Examiner finds that, for Cherpeck '178, "[r]egarding program control, the Waukesha CFR single cylinder engine is a program control machine" (Ans. 11).

Analysis

Cherpeck '178 teaches a method for screening of at least five different fuel additive composition samples where the "test compounds were blended in gasoline and their deposit reducing capacity determined in an ASTM/CFR single-cylinder engine test" (Cherpeck '178, col. 18, ll. 21-23; FF 13, 16). Cherpeck '178 teaches a machine which provides the samples under "program control" (FF 17), which measures the samples and which outputs the samples as shown in Table I (FF 15).

Appellant argues that "Cherpeck '178 merely discloses individually testing fuel compositions for deposit formation via a non-automated process. At no point, however, is there any disclosure in Cherpeck '178 of a high throughput method for screening a plurality of fuel additive samples for deposit formation" (App. Br. 13).

We are not persuaded. Based on our claim interpretation, the analysis by Cherpeck '178 of multiple samples reasonably satisfies the "high throughput" requirement. Appellant has not argued or rebutted the Examiner's finding that the single cylinder engine is under "program

control". Arguments not made are waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) ("Any arguments or authorities not included in the brief or a reply brief ... will be refused consideration by the Board, unless good cause is shown.").

Conclusion of Law

Appellant has not demonstrated that the Examiner erred in finding that Cherpeck '178 teaches a "high throughput method for screening fuel additive composition samples, under program control" as required by Claim 1.

D. 35 U.S.C. § 102(b) over Cherpeck '315

The Examiner finds that "Cherpeck ['315] teaches measuring fuel deposits by TGA in the presence of air, and teaches raising the termperatures [sic] and measuring the deposits at different temperatures (see Example 14), and accordingly meets the limitations of claims 1 and 5-10" (Ans. 4).

Appellant argues that "[e]ach example carried out by Cherpeck '315 is a manual laboratory test. At no point is there any disclosure in Cherpeck '315 of a high throughput method for screening a plurality of fuel additive samples for deposit formation" (App. Br. 15).

In view of these conflicting positions, we frame the anticipation issue before us as follows:

Has Appellant demonstrated that the Examiner erred in finding that Cherpeck '315 teaches a "high throughput method for screening fuel additive composition samples, under program control" as required by Claim 1?

Findings of Fact

18. Cherpeck '315 teaches that the "thermal stability of various test samples was measured by thermogravimetric analysis (TGA). The TGA

procedure employed a DuPont 951 TGA instrument coupled with a microcomputer for data analysis" (Cherpeck '315, col. 21, ll. 31-34).

19. Cherpeck '315 teaches that "[s]amples of the fuel additive (approximately 25 milligrams) were heated from 25°C. to 700°C. at 10°C. per minute under air flowing at 100 cubic centimeters per minute. The temperature at which 95% weight loss occurred for each of the test samples was recorded" (Cherpeck '315, col. 21, ll. 35-39).

20. The Examiner finds that the "system in Cherpeck ['315] is a TGA system that is operated by microcomputer" (Ans. 12).

21. Cherpeck '315 teaches analysis of five different samples in Table I (Cherpeck '315, col. 21, ll. 42-50).

Analysis

Cherpeck '315 teaches a method of screening at least five different fuel additive composition samples where the "thermal stability of various test samples was measured by thermogravimetric analysis (TGA). The TGA procedure employed a DuPont 951 TGA instrument coupled with a microcomputer for data analysis" (Cherpeck '315, col. 21, ll. 31-34; FF 18, 21). The Examiner finds that the "system in Cherpeck ['315] is a TGA system that is operated by microcomputer" (Ans. 12; FF 20).

Appellant argues that "[e]ach example carried out by Cherpeck '315 is a manual laboratory test. At no point is there any disclosure in Cherpeck '315 of a high throughput method for screening a plurality of fuel additive samples for deposit formation" (App. Br. 15).

We are not persuaded. Based on our claim interpretation, the analysis by Cherpeck '315 of multiple samples reasonably satisfies the "high throughput" requirement. Appellant has not argued or rebutted the

Examiner's finding that the single cylinder engine is under "program control." Arguments not made are waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) ("Any arguments or authorities not included in the brief or a reply brief ... will be refused consideration by the Board, unless good cause is shown.").

We also do not find persuasive Appellant's argument that Cherpeck '315 is a manual laboratory test. The "program control" limitation does not require that the entire test is automated, only that "the equipment used herein in providing the plurality of fuel compositions is automated and controlled by a microprocessor or other computer control device" (Spec. 6, ll. 12-14; FF 5). The Examiner finds that the assay of Cherpeck '315 "employed a DuPont 951 TGA instrument coupled with a microcomputer for data analysis" (Cherpeck '315, col. 21, ll. 31-34; FF 18, 21). "[L]imitations are not to be read into the claims from the specification." *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (*citing In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989)).

Conclusion of Law

Appellant has not demonstrated that the Examiner erred in finding that Cherpeck '315 teaches a "high throughput method for screening fuel additive composition samples, under program control" as required by Claim 1.

E. 35 U.S.C. § 103(a) over Cherpeck '178 and Burow

The Examiner finds that the person of "ordinary skill in the art would have recognized the advantages of using generic and routine robotic based systems, computers, and remote operations as taught by Burow for the types of chemical analysis of Cherpeck because of the increase throughput

provided by these assemblies when dealing with voluminous sample sizes" (Ans. 6).

Appellant argues that "Burow et al. do not disclose that a fuel additive composition sample can be screened in a high throughput manner under program control" (App. Br. 17). Appellant argues that "[i]t is the Examiner's misguided belief that Example 3 of Cherpeck '178 teaches testing multiple fuel samples by measuring their deposit formation" (App. Br. 17). Appellant argues that "Example 3 of Cherpeck '178 discloses individually testing each fuel sample by running each test in an engine. As such, there is simply no reason why one skilled in the art would even look to Cherpeck '178 and Burow et al." (App. Br. 17).

In view of these conflicting positions, we frame the obviousness issue before us as follows:

Has Appellant demonstrated that the Examiner erred in finding that the combination of Cherpeck '178 and Burow suggest a "high throughput method for screening fuel additive composition samples, under program control" as required by Claim 1?

Findings of Fact

22. Burow teaches "an automated robotic process for handling, mixing, moving, storing, assaying, and detecting samples" (Burow 5 ¶ 0053).

23. Burow teaches that the "devices are typically located in or on a station location, e.g., a platform or table comprising electrical connections and computer and/or controller connections" (Burow 7 ¶ 0074).

24. Burow teaches that the "high throughput screening systems of the invention typically operate under control of one or more computer

systems. For example, a control unit is optionally coordinated with the operation of the high throughput system" (Burow 13 ¶ 0134).

Principles of Law

The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) secondary considerations of nonobviousness, if any. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). The Supreme Court has emphasized that "the [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR Int'l v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

"The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 416. "If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability." *Id.* at 417. Moreover, an "[e]xpress suggestion to substitute one equivalent for another need not be present to render such substitution obvious." *In re Fout*, 675 F.2d 297, 301 (CCPA 1982).

In *ICON*, the Federal Circuit explained that

> A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *In re Clay*, 966 F.2d 656, 659 (Fed.Cir.1992). In other words, "familiar items may have obvious uses beyond their primary

> purposes." *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 127 S.Ct. 1727, 1742 (2007).

In re ICON Health and Fitness, Inc., 496 F.3d 1374, 1379-1380 (Fed. Cir. 2007).

Analysis

Cherpeck '178 teaches a method for screening of at least five different fuel additive composition samples where the "test compounds were blended in gasoline and their deposit reducing capacity determined in an ASTM/CFR single-cylinder engine test" (Cherpeck '178, col. 18, ll. 21-23; FF 13, 16).

Burow teaches "an automated robotic process for handling, mixing, moving, storing, assaying, and detecting samples" (Burow 5 ¶ 0053; FF 22). Burow teaches that the "high throughput screening systems of the invention typically operate under control of one or more computer systems" (Burow 13 ¶ 0134; FF 24).

In applying the *KSR* standard of obviousness to the findings of fact, we agree with the Examiner that it would have been obvious to modify the screening fuel additive assay of Cherpeck '178 in view Burow since the person of "ordinary skill in the art would have recognized the advantages of using generic and routine robotic based systems, computers, and remote operations as taught by Burow for the types of chemical analysis of Cherpeck because of the increase throughput provided by these assemblies when dealing with voluminous sample sizes" (Ans. 6).

Appellant argues that "Example 3 of Cherpeck '178 discloses individually testing each fuel sample by running each test in an engine. As such, there is simply no reason why one skilled in the art would even look to Cherpeck '178 and Burow et al." (App. Br. 17).

We are not persuaded. Our reviewing court stated in *Leapfrog Enters. Inc. v. Fisher-Price Inc.*, 485 F.3d 1157 (Fed. Cir. 2007) that one of ordinary skill in the art would have found it obvious to combine an old electromechanical device with electronic circuitry "to update it using modern electronic components in order to gain the commonly understood benefits of such adaptation, such as decreased size, increased reliability, simplified operation, and reduced cost." *Id.* at 1163. "The combination is thus the adaptation of an old idea or invention … using newer technology that is commonly available and understood in the art." *Id.*

The combination of Cherpeck '178 and Burow is precisely the sort of combination envisioned in *Leapfrog*, where the fuel additive screening process of Cherpeck '178 is updated with the analytical robotics of Burow (FF 22-24).

Conclusion of Law

Appellant has not demonstrated that the Examiner erred in finding that the combination of Cherpeck '178 and Burow suggest a "high throughput method for screening fuel additive composition samples, under program control" as required by Claim 1.

F. 35 U.S.C. § 103(a) over Cherpeck '178

Having affirmed the anticipation rejection of claim 1 over Cherpeck '178, we necessarily affirm claim 1 as obvious over Cherpeck '178 for the reasons given above. *See In re Fracalossi*, 681 F.2d 792, 794 (CCPA 1982)("evidence establishing lack of all novelty in the claimed invention necessarily evidences obviousness").

G. 35 U.S.C. § 103(a) over Cherpeck '178, Burow, and Luttermann

The Examiner finds it obvious to modify the method of Cherpeck '178 and Burow with Luttermann since "one of ordinary skill in the art would have recognized

that combinatorial approaches using decision making processes for selection of positive samples for further testing as taught by Luttermann is well-suited for large sample sets" (Ans. 8).

The Examiner provides sound fact-based reasoning for combining Luttermann with Cherpeck '178 and Burow. As Appellant did not identify any material defect in the Examiner's reasoning, and only argues the underlying rejection of Cherpeck '178 and Burow which we affirmed above, we affirm the this rejection for the reasons stated by the Examiner.

SUMMARY

In summary, we reverse the rejection of claim 16 under 35 U.S.C. § 112, second paragraph as indefinite.

We affirm the rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Heneghan. Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejection of claims 2 and 8 as these claims were not argued separately.

We affirm the rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Cherpeck '178. Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejection of claims 2-6 and 8-11 as these claims were not argued separately.

We affirm the rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Cherpeck '315 (Ans. 4). Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejection of claims 2-11 as these claims were not argued separately.

We affirm the rejection of claim 1 under 35 U.S.C. § 103(a) as obvious over Cherpeck '178 and Burow. Pursuant to 37 C.F.R.

§ 41.37(c)(1)(vii)(2006), we also affirm the rejection of claims 2-6, 8-13, 15, and 17 as these claims were not argued separately.

We affirm the rejection of claim 1 under 35 U.S.C. § 103(a) as obvious over Cherpeck '315. Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejection of claims 2-11, 62, and 63 as these claims were not argued separately.

We affirm the rejection of claim 1 under 35 U.S.C. § 103(a) as obvious over Cherpeck '178, Burow, and Luttermann. Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejection of claims 2-6, 8-15, and 17 as these claims were not argued separately.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(2006).

<u>AFFIRMED-IN-PART</u>

alw

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